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Appearances:

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Librarian Analyst

EDMUND APPLEBAUM, Representing
the Library of Congress

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CHAIRMAN FULD: I call to order the twentieth meeting of the Commission. I welcome you all.

The agenda calls for a report of the activities of the Photocopy Subcommittee. The Subcommittee still has certain matters in consideration; accordingly that item will go over until tomorrow morning.

We have two witnesses before us today. The first is Mr. Theodore H. Nelson. He holds degrees in philosophy and sociology from Swarthmore and Harvard, respectively.

He has been active in the computer field since 1960. He has worked as a consultant and he has published a number of articles on computers as well as written two books, "Computer Lib," and the recently published, "The Home Computer Revolution." Mr. Nelson will speak to us on new applications for data-based technology.

We welcome you, Mr. Nelson.

MR. NELSON: The timing is interesting, because there is an article in the present issue of Time magazine headed, "The Computer Society," which in some respects is excellent but has less than two paragraphs on software. So that in terms of awareness of what software is going to be doing and where we are going, Time appears to be swept along with all the hardware types, telling us how wonderful it is going to be as soon as we do this, that, or the other thing.

It is a very pretty spread. There is a cartoon of the home of tomorrow in which everyone is doing something or other with a computer, and we assume again that somehow the hardware people are going to put this together for us.

CHAIRMAN FULD: By the way, what is the issue?

MR. NELSON: This is just on the stands, February 20th.

This is not the case. The hardware people are running blind, and what is needed is thought, intelligence and a little sense of the traditions of the culture of the Western World.

I am a writer, a businessman and an artist. Some would dispute the businessman and artist, and my personal background is originally in writing.

I came into computers because I wanted a writing system. I met the computer in 1960 and said, "Wow, this is the way to get that novel organized," because writing is a complex and difficult matter.

Since that time, I have been working on exactly this design with many subsequent ramifications and I am still hoping to have the machine six months from now. Only a few of my ideas have really come out, but those who know my work seem to feel that it is fairly original and creative, so I want to talk first about what originality and creativity means in this area.

The divine spark, the inspiration that the creative artist or writer tries to hold himself open to and tries to go with when it comes is very much the same in the programming field. Now, when I say programming, I am not talking about general programming. My special concern is with graphics, texts, and interactive systems, especially games which I believe are going to be the subjects for most programs of the future, as computers come into the home, as data replaces paper, and as the screen becomes the principal place at which we write, draw pictures, play and make sketches for the benefit of others.

There are a number of analogies I want to draw. Originally, I wanted to be a movie director, and the design of interactive computer systems is exactly the same sort of creativity- -

imagining a happening, imagining its emotional impact, imagining its conceptual meaning to a user. Here's a guy going to sit at a computer screen. How is he going to feel when he hits the button and something jumps out at him? That is the question of impact.

Now, the computer has widely been mistaken for some kind of a technical gimcrack. I hold that each person who programs a computer makes it something of himself, that the computer is actually a projective system, and that each program represents its creator, represents a uniquely conceived and formulated, uniquely rarified totality invariably proceeding from the unique psychology of the programmer.

Everything a person does in it is based on his own personal psychology.

How different that is from the prevailing public impression that the computer is coldly insensitive, impersonal, demanding.

Let me explain to you the reason why this style of computer usage has become a trait. It's because it seems that people who are coldly insensitive, impersonal and demanding are the ones programming it, and so the computer has come to embody this personality.

It is just the way that dogs and children come to act in each culture the way dogs and children are expected to act in each culture.

Is is my personal feeling that computers, as the world has come to know them, derive their personality in no small measure from the company that is most identified with them and indeed from that company's sounding figurehead, Thomas J. Watson. If we think of computers as cold, demanding and impacable, it is because Thomas J. Watson was cold, demanding and impacable in his style of management. He forged his creation and that is the style which has come to be what people think computers are. If upper management is cold, demanding and implacable, so it passes down into the programmers and this seems to be so much the trait in all of them that no one bats an eye when the computer is set up to be cold, demanding and implacable. No, it seems to them the very nature of the machine itself.

Just as Melville saw each sailor pick on the one of lower status until the lowest man kicked the dog, so it seems like just what is to be expected.

Now we see the new creative libertarian style of computer programming, and this represents to me a breaking away from the implacability and impression of this century. It is possible to bring the joys of poetry and history and art and science and unfettered learning and unhampered creativity to millions of people who have endured unimaginable schooling and who lead bitter or monotonous lives. To do such simply means a complete turnabout in the way these wonderful machines are used.

We must turn away from the style that has been the tradition.

CHAIRMAN FULD: May I interrupt you? As to what you say, it is very interesting, but does it have any bearing on copyrightability?

MR. NELSON: Oh, I think so.

Rather than to say, "You must learn this; you can't do this; you can't do that," we must prepare systems for users who are confused and who might even be a little afraid of us.

It is overdue to --

CHAIRMAN FULD: You are going too fast again.

MR. NELSON: I'm sorry. Maybe I am just trying to get to the heart of it as quickly as I can.

We have got to make systems easy to use and clear and fun. The style of operation with which computers have been associated so long was not because it was in their nature but because it was in their tradition.

It is time for computers to enter into the intelligent and spiritual life of man. I recognize and acknowledge my duties here, because I keep saying these things, because I claim this is impossible and that things have been wrong, and I acknowledge my obligations to prove it. Proving it means to help design systems that are helpmeets to creativity, to a man's uniqueness.

I have been working to develop such systems, first for personal use and later with the intent of helping mankind. Since I was 23, a period now of some 17 years, let me tell you what this design process has been like.

It is something like movie making and something like writing and something like illustrating magazines and something like designing furniture. First you think about your topic. Let's say it is writing. Suppose you want to design a system for use by the writer, so you think about the things that writers do.

If you don't know much about writing, you might come up with a system something rather like a present-day word processing system. First draft, cut and paste, polish, retype; second draft, cut and paste, polish, retype, for however many intermediate drafts. Then final draft, cut and paste, polish, retype. That is the shallow version, but the first thing you do to computerize this shallow version is think about this process and what parts are in what sequence. If you are going to move it into a computer, the first thing you eliminate is retype. Then you think, "How do I want it to appear on the screen? What visualizations do I want?

What controls do I want?"

Then you think, "How do I want to move among these visualizations and these controls?" Actually, you think about all these things together. There is no one right answer. A good system will let you do everything you want easily. You will learn it simply and find your way in it easily.

Using a computer should always be easier than not using a computer. Its visualizations will correspond to what you want to think about; its controls will correspond to acts you want to perform. There would be no extraneous features.

I worked just as hard to design these interactive screen systems and I have worked while writing or editing movies in the same way. In editing movies, you are considering many complexities, the conceptual and emotional effects. They are visual to the user like a painting or a movie. They are textual to a user like a book. They involve the design of structured activities by human beings as do games or stage plays.

Paintings, movies, books, games, stage plays. All of these are copyrightable. I have tried my hand at all of these, occasionally with some success, and I know what is involved in each creative process. I can see no basis for withholding copyright privilege from a former creativity which embodies the same creative thrust and power as all the others, the same tentative defining of limits and patterns, the same continual reflecting and crossing out and starting over, the same groping for particulars which will be successfully embodied in some grand version you had when you started, the same selection, construction, rearrangement, dismissal, reconstruction, the same feeling when you accomplish what you wanted to accomplish in a way you didn't quite expect.

I can only speak for myself. It is true that too often computer programming is a job for time servers, foot soldiers, moles and drones, and not creative at all. To confuse this type of programming with freehand creative design is like confusing the people who write classified advertising with the people who write for love of words and concern for what is to be said.

In much computer programming, there is no creative experience, no impact, no notion of truth or interaction. In much of the other writing of mankind the same is also true, but that hardly invalidates the copyrightability for writing an original, perceptive program.

It is my personal belief that there is no distinction between this type of computer programming and the other creative arts. We cannot distinguish between computer programming and the other creative arts on the basis of the thought processes involved, the interactions, the complex trials and the selections, nor of the character of the result which may be graphical, textual or game-like, nor of the impact of the result on the final user which may be artistic, emotional or conceptual. It is interesting that the distinction can be made only by a case of special rejection, only if we single out the computer as the only device which follows a plan itself. Other plans for mechanisms may be copyrightable, but the computer which goes along by itself -- perhaps this is a distinction.

As a devoted practitioner of this form of creativity, I find the idea of having it prejudicially exempted from the equal protection of the law as demeaning it in the eyes of others and strikes at my hope, any hope of special reward for special creativity.

There are those who seem to think that because of their training or whatever the territory is theirs by right. On the other hand, there are those who consider the computer as some trashy and trivial form of technical intrusion which will be dealt with when necessary, but should otherwise be ignored.

There are many of us who now see that the future of mankind lies not on paper, but on screens. We are trying to create for the benefit of tomorrow, the future of learning. To suggest that a creative writing deserves less respect because it is done in unchartered territory is quite a kick in the shins. To force us to work without copyrights would force us to not be able to publish openly. We would have to make the program hidden from prying eyes, and this involves a great deal of effort. It would involve an increase in the cost to the consumer. It might indeed make programs unavailable to the consumer that they ought to have because, of course, the real computer market is in the home and always has been. That is about to start.

No copyright would mean that much, perhaps most programming efforts would go into hiding, the obscuring of what might almost be trade secrets.

I see one critical question that you might consider. How great is the difference between the best programs and the mediocre ones? Is it 10% or 10,000? Are there any great programs?

I believe so. To anyone experienced in the field there can hardly be a question. A language like APL, a program like Sketch Pad, the first truly interactive graphics that allows you to draw on a screen -- these are works of art that I think no one who fully appreciates them can deny.

That concludes the first part of what I wanted to say.

What I have been working on all this time, the principal effort has been a literary system,which I hope will bring you anything you want to read in a few seconds anywhere in the world.

It seems to me obvious that such a system should be built and I read all of these senseless pronouncements in the public press about how in the year X we will have a sugar cube which will contain the Encyclopedia Britannica. But what if you want to read something out of Encyclopedia Britannica? There is always something else that you haven't got locally. Serious attention has not been generally given in most locations to the problem of finding whatever you want in a hurry.

The approach I have taken is that using conventional equipment and later better and better equipment, we can indeed bring forth to a user a terminal in an arbitrary location at a time of his own usage, whatever he wants to read within seconds. Why has nobody worked on this that I know of in the major corporations? Well, because they are immured in a tradition of strange ways of using computers, because they are not really concerned with vast literary corpuses. They couldn't really see why anyone would want to read all that.

It is a question I am constantly confronted with by the technical people, "Well, why would you want to do that?" and the answer is, "I want it because I want it. I want to be able to read anything within seconds."

The first exhibit I would like to pass out is the specifications for the network which I and my colleagues have been working on for some 17 years. This happens to coincide with this announcement which is being sent out to graduate departments and other interested people in the field.

I will outline the highlights of it for you very briefly. Xanadu is the trademark to distinguish it from any other Hypertext network.

The basic concept is that we will store for a fee anything you want stored and get it to you as fast as can conceivably be done. We believe we have reached the mathematical limit and it is much better than most people would suppose, and our approach to copyright on this system has to be the following: That each document has an owner and the document's owner gets a royalty, period, every time it is called to the screen.

The way we want to base it is simply on time and screen area. If your document fills the whole of the screen for a whole hour, you get a whole hour's royalty. If it fills half the screen for one hour or fills the whole screen for half an hour, you get half the hour's royalty. If someone else wants to modify your document, and this is the direction that we put, his modifications are stored separately for what is to him his document. When someone puts forth the modified document, the original is drawn forward and the modifications. Both authors share in the royalty as automatically determined by the size of the changes.

Now, this is obviously not a legal question. What I am proposing is a contractual question, but in my conversations with gentlemen in Washington, they seem to be interested in an approach that has not been mentioned, that the royalty and the copyright can be immediately kept track of and yet everyone can use the document any way he wants to without making a great deal of it.

I have a couple more things to show you. I have spoken of the distinction before for visualizations on a screen. I believe that the design of visualizations by which I mean systems of windowing, systems of usage, is an art form. I will give you one example which will show you what I mean by this. I call this one the Parallel Textface, and I worked on it for some length of time.

The principal of the Parallel Textface is to allow a reader with no training whatever to read through documents of any kind at great speed if he wishes, slowly and calmly if he wishes, to make changes in his own document, and furthermore, to be able to see the correspondence and connection to another document.

Now, these correspondences and connections are assumed to have been put in by an individual. In a diagram I show, let's say a Bill before the Congress, the House version and the Senate version. You can read forward or backward in either the House or Senate version, and because someone, a clerk or an author, has put in these connections and shown by the lines between them, you can continually see which parts correspond even though the parts are not in corresponding sequence.

Now, let's go through the steps of this so you will see what I mean by simplicity and what I mean by user design. How do you go backwards and forward in the text? Well, you take your light pen. Assume you have a light pen for the controlling of the screen. You put your pen at the lower corner of the box. Let's say you are going to read the House version. You see that little extending line? If you want to go forward, you move the line up with your light pen and the text moves at the speed you show.

You see this lower left-hand corner of the page? If you want to move backwards in the text, you move the pen down and the text moves backwards at the speed approximate to however you move the light pen.

You see? I've taught you that instantly. There is no training involved. Now you can use that part of the system with no further difficulty. You can never forget how to do it.

Now try that some time on a so-called word processing system.

All right. The next control I show you are these lines between the two panels, this link between individual points in the text. I show you the beginning letter of the paragraphs to indicate just so you would see which. The paragraphs which begin with an E are linked by the line. The paragraphs which begin with an R are linked by the line. The paragraphs which begin with an M are linked. You notice that the paragraph which begins with a U has an arrow pointing down. This means it is linked to something not presently on the screen. If you want to see exactly what it is linked to, you just tag that U with your light pen and, ping, the corresponding paragraph is on the other side.

Now I have taught you that feature of the system. If you want to make changes in the text -- is this --

CHAIRMAN FULD: Yes, very helpful.

MR. NELSON: If you want to make changes in the text, I give you that strange-looking object in the center of the screen, not because it is pretty but because it is all in one place, and because once you understand it, you can't forget it. If you look at the right-hand side of the page, you will see how we broke it up. If you want to insert something, you touch the caret. Then you merely type the insertion in.

If you want to rearrange, you touch the squiggly part of the diagram and cut the text where you wish to make the rearrangement. Hit the space bar and instantly the rearrangement occurs. If you want to make a deletion or copy, you can do so.

If you wish to do those things to the links, insert, rearrange, delete or copy, then hitting the links does that. Finally, if you want to move among previous versions to compare them, you use the little hourglass which I have given you as the word X in Xanadu. If you want to go backwards in time, you touch the top part of the hourglass; forward, you touch the top.

I gave you this as an explanation of what is meant by interactive system design. This design took months, years to work out. It is not pretty; it is meant to be functional, simple and clear. When I look about me at most computer systems, you will find that they aren't simple and clear, so this is the kind of thing which I am advocating and which I am trying to create in the line of home software that I am involved with.

CHAIRMAN FULD: May I ask a question?

Is it your view that all computer software programs should be copyrightable or only various types?

MR. NELSON: I would see no place to make a distinction. It might be said that since texts of this kind can be put on paper, that the paper copy might form a basis for copyrightability. On the other hand, there are so many things that have to do with the interactive qualities of the event in an interactive system, it becomes a game like what do you know, what happens if, what happens if.

But to return to your question, I don't see a dividing line.

MR. APPLEBAUM: Does this mean -- I notice you have a copyright mark here -- that the caret insert would be then totally dedicated to your program system?

MR. NELSON: I should think not. It has obviously been used for centuries, and I would not presume to say that. It might turn up in a Court some day for someone else to decide, but I suspect that I have done something creative in those long years with this particular item, and under that suspicion, I am putting on that note.

COMMISSIONER HERSEY: May I ask a question about the creative processes, because you introduced that in terms of creating something like a writing.

Suppose I want to invent a typewriter in the pre-typewriter days. I think very hard about what a writer does, and I may become very excited about this process and I may write many descriptions of what I want to do, and I may revise and cut things out and add things and go through many writer-like processes in devising this instrument.

Should my typewriter be copyrighted?

MR. NELSON: I don't think so. It is a machine, but a program is a piece of writing.

COMMISSIONER HERSEY: Now, when your program operates through one of these devices, does the viewer read the program or does he read the data that is presented through the program?

MR. NELSON: You mean if my user does not see the program, but many people would.

COMMISSIONER HERSEY: Does anybody read the program except in the early descriptive phases? I mean when it is operating in the machine.

MR. NELSON: Sure. It is intended that our -- we are creating a line of software for the home called SOFTWORLD. It is intended that the program can be easily modified by anybody who understands the language. They can write in and make specific changes to suit their needs if they are conversant with the programming language.

COMMISSIONER HERSEY: When you spoke about mixing the works of authors, you said there is no problem about royalty and the copyright arrangements --

MR. NELSON: I didn't say there was no problem. I said I hoped we had a solution.

COMMISSIONER HERSEY: But the solution has to do with the writing.

MR. NELSON: Well, writing is data, if I understand you.

COMMISSIONER HERSEY: Yes, so that the issue arises not with respect to the program, but with respect to what the program operates.

MR. NELSON: Right. That is a separate topic.

COMMISSIONER HERSEY: I would just like to echo some of the words that you used to describe what the program will do.

"We will bring you whatever you want to read. We will store it and give it to you." You showed us the controls to move the text up and down. At one point you said it is meant to be functional.

It seems to me that these are things which the program does, not what it says. What it says in these communications of yours is said by the data which the program manipulates; is that not correct?

MR. NELSON: Right.

COMMISSIONER HERSEY: Thank you.

MR. NELSON: One point that you made in your searching paper on copyrightability of programs with respect to a program changing the condition of the machine, you referred to compiled and assembled programs which do reside in computers in a final form, which is never read, characteristically.

On the other hand, I think it should be pointed out that more and more programming is taking place in languages which are never compiled or assembled, the so-called interpretive languages like APL or Track language, which do not have a permanent residence or form other than that in which they are written. They are simply carried out one instruction at a time.

CHAIRMAN FULD: Are you making a distinction between that type of program and the other?

MR. NELSON: Well, I think the logical point that Mr. Hersey made in the paper about it becoming a part of the machine in some conceptual sense is not true for these languages. In fact, there is really a continuum between these languages and the data base that is, I think, an important point.

The lowest level programming is the so-called Binary Code which entered into the memory in a lot of incomprehensible ones and zeros. That, however, is being enlarged and replaced by the higher level languages, such as the interpretive kind, and languages above that, the data table kind, which reads a table of data. These languages do not essentially have this characteristic, that's all I am saying.

COMMISSIONER HERSEY: Is it not the case with these languages that each instruction is dealt with by the computer one by one?

MR. NELSON: Yes.

COMMISSIONER HERSEY: And what happens?

MR. NELSON: What happens is that the language processor which is resident examines the individual instruction of the language and then goes and sees what is required to carry out that individual instruction and does it one by one from the table of the language processor.

COMMISSIONER HERSEY: But it is essentially the same transformation; is it not?

MR. NELSON: I don't think so.

COMMISSIONER HERSEY: It happens successively, and you are feeding in a more consecutive kind of language possibly, but each step has to be digested by the machine and dealt with by the machine in a mechanical way, otherwise it can't operate.

MR. NELSON: Yes, but the storage of those lowest level steps in the Binary Code is in the language processor but not in the program in what is being referred to. The program itself is what someone would be applying for copyright for. As far as a copyright for the language processor, that is a separate question. I am speaking of a higher level program which is never, never translated.

COMMISSIONER HERSEY: That exception is what I am talking about. There is the transformation into the really operative program up to that point. Presumably this language -- it may be fed in a natural language, and that presumably could be copyrighted with no change in the law as we have it now.

What happens to each step when it gets into the machine that transforms it from natural language into a mechanical language, which is a different matter.

MR. NELSON: It is very hard to visualize what these things are going to look like five years from now. Allen Kaye of Xerox has an interpretive language called Small Talk which is full of little pointing fingers and funny little pictures. Five years beyond that, who knows what we will have.

CHAIRMAN FULD: This is the copy of Time Magazine you referred to?

MR. NELSON: Yes.

I think the issue is substantially correct in its treatment of the impact of chip computers. I think that we will see some ten million sold in the next couple of years.

Texas Instruments is about to move. A number of companies are gearing up to sell computers, home computers, in the millions, and so the impact will be upon us fairly before anyone is capable of being ready for it, and the software that is presently available for these things is at a very low level.

The ratio selection of software has been disappointing to begin with. There are excellent computers, but this should not distract us from the next generation of graphics and of texts which would be involved, screens in great quantities. I am thinking ahead especially to three-dimensional graphics. I want to get to data base. I would like to talk about artistic data base and especially music graphics, games in three-dimensional worlds.

We can expect within the next two years the first totally synthesized motion picture. I know of two well capitalized major efforts, one on each Coast, to create a complete motion picture synthesis studio.

COMMISSIONER PERLE: What do you mean by that?

MR. NELSON: I mean a system whereby an artist creates a sculpture on a screen which is then transmitted with total realism so that Star Wars -- Star Wars was made with plastic models, great big plastic models, but this can be done by computers.

NASA is presently using this for making propaganda films. The University of Utah is using it for making technical films,but the movie application is the really big kill. There is at least one motion picture forthcoming. When this happens, I assure you it will be staggering, comparable to Star Wars. It will be a very big deal and cult thing.

COMMISSIONER PERLE: People --

MR. NELSON: People, things, background with total realism. We have seen realistic sculpture. And to this can be added light, shadow and dimension. This was done by Ron Swallow.

I have brought along a few of these folders. I would like you to take out the one with this on the cover and open it. On Page Z which is also 126, depending on which way you look at it, there are several illustrations made by a system in Arlington, Virginia.

Does everyone have this in front of him? It is Page 126-A or Z, depending on which way you are holding it.

VICE CHAIRMAN NIMMER: This looks like a cartoon. It doesn't look realistic.

MR. NELSON: This is an earlier system.

What I want to show you is that he is putting this concept to go into the home, so that you will be able to, on your T.V. screen, to get a full synthesized application with rapid animation on your own home T.V. screen.

Now, I would like to point out the little house in the first column. This little house is Ron Swallow's hobby. He has been working on it every day. Every day he goes in and adds a cornice or a part of a chair, and you can go inside the house and look all around it. That is a three-dimensional data base. Three-dimensional data bases will become the playground of tomorrow. Kids will go into the Penny Arcade and walk through it and fight a dragon. Individual artists will produce Fairylands. You can have -- we can take the Oz books and animate them all or have animated three-dimensional color illustrations of this kind.

Now I am talking three to five years away here, but it is definitely on the horizon. This system is working and is in prototype, so that what I am trying to say is that personal artistic data bases are going to be an important new form of publishing, and I refer to this three-dimension case in particular because of its general reality. It will be very widespread.

VICE CHAIRMAN NIMMER: May I ask you, in your description of your Xanadu system, say the owner does not determine whether a reader may create links to it or modified versions of it?

MR. NELSON: Do you mean he doesn't make the actual decision as to whether it is going to be done, or do you mean he doesn't consent to it?

VICE CHAIRMAN NIMMER: He doesn't give his consent to it being done.

MR. NELSON: When I publish a book, I have nothing to say about how a person scribbles on his own copy. The way it is being designed in Xanadu is that a published book can have marginal notations or any other scribbles made on it. My assumption is we can't go on chopping down all these trees. We can't go on shipping these great rolls of paper. We don't have gasoline.

What we are trying to do is to start regarding the true form of publishing as the text itself, available instantly.

VICE CHAIRMAN NIMMER: Now, if someone does, let's say, make annotations in someone else's book and then publishes the book with the annotations or with changes, I think more accurately, if I understand what you are doing, with changes in the original work, exclusions and additions and alterations, that would be an infringement in the copyright of the author of the published version. Could you respond, or will you obtain the consent of the author of the underlying work to permit such changes to be made?

MR. NELSON: Naturally, I intend for everything to be aboveboard.

The books themselves which exist on paper--it will come to pass one, ten years, a large proportion of writing will not exist on paper at all, except with some eccentric who wants to have a paper copy to clutter up his desk with. As to what provision now we could make for allowing people to take liberties with these, well, I like to make margin notes. I like to make extensive notes on things.

CHAIRMAN FULD: You don't feel that authors will become extinct, do you?

MR. NELSON: No, because the machine is not creating the work. I am saying that the work is stored in the machine. I am not even saying that publishers will become extinct, but the publisher becomes someone who pays for the rapid access of a given document, just as the publisher is the man who pays for the printing on sheets of cellulose in today's world.

So what I am driving at here -- and I am sorry for, perhaps, the poor language structure -- let me step through it. Is a document whatever someone writes or changes or some combination of the two? Now, Mad magazine, about ten years ago, published a delightful version of the Gettysburg Address as it might have been corrected by a high school teacher written by Doodles Weaver from Spike Jones.

Now this is a nice example. We have an original document, and we have a set of changes, two separate documents which yield yet a third. The

Gettysburg Address is owned by Abraham Lincoln or posterity. Doodles Weaver owns his modification. The modified document is then a combination of ownership, a hybrid ownership of the two.

The problem does arise if he is only making his annotations for his own personal use, but it is highly desirable, I think, from the point of view of scholarship and the ongoing snowball of western culture that we be able to pass along our comments in detailed form. I am only saying that it will always be valuable to be able to add marginal notes and to say, "I suggest the following corrections," and that is what this system would make simple.

It is intended to be the access to get right away what you intend to read right away, and stop the necessity of printing on paper and libraries.

COMMISSIONER PERLE: You said that the document owner would get a royalty each time the document was called to the screen, and that payment would be based upon the percentage of the screen occupied and the time that it was on the screen; is that right?

MR. NELSON: Yes.

COMMISSIONER PERLE: How did you arrive at that formula?

MR. NELSON: Very simple. I am assuming that connected and linked documents would become the writing of the future. That is what Hypertext means.

In the old days when somebody cites somebody else, Time cites what somebody else published earlier, we have to take the time to search for that direct quote. Here the original is on the screen and it says according to the great film critic so and so, then we can read the exact quote and follow it along to see the context of that, zap, bang. There's the original quotation. We are now in the source document.

COMMISSIONER PERLE: We now have the ability to attach a change onto that when that is on the screen?

MR. NELSON: No, this is something else. We call this Quote Window, a quotation from an original document which is also stored on the system. By gunning the quotation marks, we can make a part of the present document fade away and bring forth the source document.

COMMISSIONER PERLE: Okay, about the source document... I think though that you had said before that you now have that ability to take the source document, edit it, do something to it, make it a link document.

MR. NELSON: That is a separate capability. The linkage is yet another thing.

COMMISSIONER PERLE: Now, will you be able to call up that revised link document or whatever it is?

MR. NELSON: Yes, assuming it will be published. That is why I am drawing a distinction. If you create a private document that is encoded, nobody can possibly read it, so even though you want to read it when you are in Los Angeles, you call it to the screen. No problem of anybody else getting into it.

Now, as to public documents, where you want to make private marginal notes, you do so and no one else can read your marginal notes. You cannot make a public document draw on a private document. That is logically incompatible.

In our system, that is part of the ground rules. We are stating the concept of ownership, the preservation or rights. Many people, many university types and hardware types say, "Oh, that is a thing of the past. Anyway, who reads?" Our point of view is we want very much to preserve the western tradition and just make it faster.

VICE CHAIRMAN NIMMER: Your proposed division of royalty, as I understand it, between the author of the underlying work and the author of the adaptation, would be divided quantitatively; is that right?

MR. NELSON: Yes.

That may not at all reflect to the market outside of the computer. The underlying document may have a much greater value or it could be the other way around.

CHAIRMAN FULD: This is contractual between the two?

MR. NELSON: I am assuming for everyone who happens to put stuff, to make stuff publicly available in the network; if you want it publicly available in the network, you then deign to accept these terms.

VICE CHAIRMAN NIMMER: It is a uniform contract?

MR. NELSON: Yes, and the notion of uniform royalties is quite important in this sense. We want to have it provable that no one can look over your shoulder and tell what you are reading. In order to make that provable, we can't deliver, let's say, a nickel an hour delivery for every reader, and that's that. If we have to start doing that, the next step is, well, who read what, when, and we don't want to have that, no way.

CHAIRMAN FULD: Mr. Nelson, apparently you have given a lot of thought to the problem. Your part of the problem is protection of software; what difference does it make whether it is copyrighted or some other device?

MR. NELSON: It has to do with the degree of protection. Speaking as a businessman vitally concerned for my special interests, let me explain how the copyright issue affects us.

We have a program. It will not be a large program. We believe we have made some important discoveries that make this whole thing go. It would fit on one or two chips. We would like to put it in every home. We would like to make this available to everyone right there in the home computer.

If it is not protectable, we can only build a network where the home computer can dial into this. That is the problem that confronts me. I would like it to be public so that everyone can understand it, so that all the computer scientists can see that what is described, that, "My God, it really can't be broken." We want that degree of public accountability, and also the ability to see this and make it a universal system through the phone system.

COMMISSIONER HERSEY: Mr. Nelson, there is no issue here of copyright on the one hand and no protection on the other hand.

MR. NELSON: I am aware of that.

COMMISSIONER HERSEY: There are other modes of protection. I think we should be very clear that the question that we are talking about is the protection of data base, that when we talked about the writings that may have been mentioned and also the machine, the things that may go into it, the pictures that are put on the screen, you are talking about data base. We are talking about protection about data base there; are we not?

MR. NELSON: Mr. Hersey, I was emotionally affected by your piece and I wrote an emotional response to it.

COMMISSIONER HERSEY: Oh, sure, we all get excited. I do, too.

CHAIRMAN FULD: What you said goes to include software?

MR. NELSON: Yes, that is our big problem. We are concerned for the libertarian and freedom issue.

CHAIRMAN FULD: As long as protection is accorded by some other method, why copyright?

MR. NELSON: We would have to look at the protection. If it is truly the kind of protection we want, then that's great and we are very anxious to make this a public thing.

VICE CHAIRMAN NIMMER: With respect to this particular protection, assuming you have contractual relations with all the authors you want to input into your system, that is the data base protection; doesn't that adequately protect you against competition without a need for the program copyright as well?

MR. NELSON: I wouldn't like to think of it that way. I don't want to lock people into this system. I want to invite people into this system and leave the door open.

VICE CHAIRMAN NIMMER: I am not sure I understand it.

MR. NELSON: Maybe I didn't understand your question.

VICE CHAIRMAN NIMMER: Well, here you are going to put all this time, effort, investment, all the world literature into your computer.

You do this, and with respect to that literature which is not in the public domain, you have presumably made contractual commitments with the copyright authors of those works.

MR. NELSON: Right.

VICE CHAIRMAN NIMMER: And I don't know whether those commitments would be exclusive with respect to computer usage or not, but assuming for the moment it would be, then that in itself would preclude anyone else from reprocessing those works via computer, even if your software program for this assemblage of material is completely unprotected.

MR. NELSON: That is very good. I appreciate the legal advice.

COMMISSIONER LACY: However, in computer software there would not be any protection against someone else taking advantage of the very, very substantial amount of time in order to establish a rival system to contract with other authors to do the same thing.

VICE CHAIRMAN NIMMER: That is beyond my depth, but that kind of program wouldn't have to be copyrighted. It could be originated without --

COMMISSIONER LACY: Normally with great labor, enormous labor. Months and months and months.

MR. NELSON: Years and years for the basic techniques.

COMMISSIONER LACY: Very valuable, expensive property.

I take it though, as Mr. Hersey has pointed out when you were talking about the three-dimensional works of art and so on, you were talking about data base. Your concern does in fact extend to programs in software as well as this, although you want a mode of protection like a copyright. You didn't want a mode of protection that permitted you to make widely known and available the program without any reliance on secrecy and restraint.

MR. NELSON: Yes, and insofar as there was an element in Mr. Hersey's paper on this, I want to respond also to the artistic side of it, but, yes.

COMMISSIONER LACY: You have no objection to it being protected by the same pedestrian device that protects telephone directories and street guides?

MR. NELSON: With respect to data base, I think the principal point is that we are going to see a vast army -- if that is the wrong term, a vast rabble of creative people rushing in and using the computer in new ways.

I think of the extraordinary talent that is going into the California home computer movement in particular. Their annual fair last year was a gathering of talent the likes of which I have never seen.

You can now get a dozen music synthesizers for your home computer. You can get a dozen graphic devices for your home computer, and we are going to see people distributing art works on these things right away.

In fact, John Whitney, who made a number of computer films, has discussed with me the possible distribution of graphical programs, so we are not talking about something that is far away. We are talking about something that is imminent.

COMMISSIONER DIX: Mr. Nelson, if we get copyrightability of computer software, do you see it applying or being applied to home systems such as your Xanadu, or a series of separate copyrights in bits and pieces such as the ability to produce Parallel Texts?

MR. NELSON: Well, you see, I call that a Parallel Textface, meaning a unified design. I really don't know how this will be.

I am the only person that I know of who is trying to design very simply and easily to use this.

Allen Kaye, again, has done excellent work in this area, but he seems to just toss it over his shoulder as just a bagatelle that follows. That may be from the way he thinks, perhaps, but there aren't many people operating in this area.

COMMISSIONER DIX: I guess that you are speaking today as an entrepreneur as well as a programmer.

MR. NELSON: Yes.

COMMISSIONER DIX: In this interrelated system which you would like to protect, is there a need for protection also though for just the ability to do one single action which might not be used in your system which you might license to half a dozen competing systems?

MR. NELSON: It might be. Let me point out that obviously people have been editing texts and people are editing texts on screens all over, but I would submit that what I would like to think is that the unification and integrity, that is hard to come by.

Anybody can delete, insert or rearrange texts, so the most creative part of what you are talking about is this interrelation of the parts in a sense. This is a new area. It is graphical, but it involves the moving and tunneling through different possibilities, and instantly.

This is a new medium here.

CHAIRMAN FULD: Thank you very much, Mr. Nelson. Very informative and interesting.

Our next speaker is Mr. Michael Harris, Chairman of the Board of Copyright Clearance Center.

He appeared before us last year. He will give us a report of the activities of his organization.

MR. HARRIS: Michael Harris, Chairman of the Board of Copyright Clearance Center.

CHAIRMAN FULD: Mr. Harris, we are glad to see you again.

MR. HARRIS: I have written copies of the statement that are being distributed.

My name is Michael Harris, and I am Chairman of the Copyright Clearance Center. As all of the members of this Commission know, the Copyright Clearance Center is a non-profit organization created by representatives of authors, professional societies, publishers, information companies and users of educational and scientific material to facilitate photocopying by libraries and other users beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law.

As of today, the CCC has been operable for one and one-half months. Experience in this short time